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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/517,767	12/23/2004	Hiromu Ueshima	100341-00057	6783
4372	7590	06/05/2008	EXAMINER	
ARENT FOX LLP			SHAH, MILAP	
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SUITE 400			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20036			3714	
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			06/05/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DCIPDocket@arentfox.com  
IPMatters@arentfox.com  
Patent\_Mail@arentfox.com

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/517,767	UESHIMA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Milap Shah	3714	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 23 December 2004.

2a) This action is **FINAL**.                            2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-17 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 1-17 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 23 December 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/23/04.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_ .

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file. June 27, 2002, the date of the earliest priority document, is used as the priority date for the following examination of the instant application.

### ***Double Patenting***

Claim 16 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 1. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

In the instant application, claim 16 appears to only differ from claim 1 in respect to the preamble, where the Examiner fails to see a difference between an “information processing apparatus” and a “man-machine interface”, as both could be either, thus, regardless of the preambles, the claims simplify to their limitations which in this case appear to be exact. Thus, claim 16 is objected to as being a substantial duplicate of claim 1.

### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-17 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. It appears the claimed invention falls under the category of being an “abstract idea”, that is, data is obtained and then calculations and additional information processing is performed,

however, the latter steps are merely computer steps and thus the claimed invention does not produce a useful, concrete and tangible result as required by 35 U.S.C. 101. Specifically, it appears that the claimed invention is useful and concrete, but fails to provide a tangible result. The last process or step in at least independent claims 1 & 16 includes a mere "...performing information processing...", which is considered to be a computer program or computer process that does not appear to conclude in a tangible result (i.e. a display of this performing of information processing or some type of appreciable output). For at least these reasons, claims 1-16 are rejected under 35 U.S.C. 101.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Manwaring (U.S. Patent Application Publication No. 2002/0098897) in view of Numazaki et al. (U.S. Patent No. 6,144,366) & Poillon et al. (U.S. Patent No. 5,056,791).

**Examiner Note:** In the following rejection, the Examiner has cited particular citations from within the applied references in regards to the claims for convenience of the Applicant. Although the specified citations are representative of the teachings in the art and are applied to the specific limitations within the individual claims, other passages and figures may apply as well. Thus, it is respectfully requested that the Applicant, in preparing any response to this communication, fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passages taught by the prior art or disclosed by the Examiner.

**Claims 1, 15, & 16:** Manwaring discloses the invention substantially as claimed including an information processing apparatus or man-machine interface system provided with an input system utilizing a stroboscope, comprising: a stroboscope (figure 1[flash units 42a, 42b, 46a, or 46b]); an imaging means for imaging an object (i.e. a golf ball) to output an image signal of the object (figure 1[cameras 26, 28]); and a first means for calculating at least a velocity of the golf ball (paragraph 0090 discusses the calculation of the golf ball velocity).

Manwaring lacks two aspects of at least claim 1, including (1) the imaging means imaging the golf ball at both light emission and non-light emission, further, calculating the various golf club or golf ball properties (i.e. velocity, spin, angle, etc) based on a difference of images taken at light emission and non-light emission; and (2) a second means *for* performing information processing on the basis of the information calculated by the first means (i.e. clearly Manwaring has the “means”, as in a computer processor, however, Manwaring lacks explicit disclosure of the functional language associated with the second means).

As to point (1) above, Manwaring discloses one such technique of using an imaging means (i.e. cameras) and a stroboscope (i.e. flashing units) to calculate various properties of both a golf club and a golf ball. As this technique differs from the claimed invention, the Examiner submits that Numazaki et al. explicitly disclose a technique of generating information input using reflected light images of a target object using the specific technique of differencing images taken at light emission and non-light emission of a target object having reflective areas similar to those of the golf club and golf ball of Manwaring and Applicant's invention. Numazaki et al., at column 10, lines 40-56, explicitly disclose that a method of detecting reflected light received from a target object via photo-detection detects not only the light emitted by a lighting unit, but also external light such as sunlight, thus, for this reason it would be beneficial to take the difference of a received light amount detected when a lighting unit is emitting light and a received light amount detected when a lighting unit is not

emitting light, so as to obtain only a component for the reflected light. Granted, Numazaki et al. is directed towards a target object being a human hand for obtaining imaging of hand gestures, however, the method of detected reflected light at light and non-light emission as discussed appears applicable to a plethora of different inventions in which a motion of a target object is to be detected. Therefore, one of ordinary skill in the art at the time the invention was made would have been motivated to modify Manwaring with the additional step of imaging at non-light emission to further difference pairs of images (i.e. one taken at light emission and an adjacent or next image in time sequence taken at non-light emission) to better obtain reflected light data to analyze for various characters of the golf club and golf ball during a particular swing.

As to point (2) above, it is notoriously well known in the golf arts to obtain analyzed swing data and use such data to simulate the swing in a virtual environment or a game, such that a player has the excitement of a real-life physical swing corresponding to an in-game trajectory and resulting swing for a golf game. To avoid mere assertions of such being notoriously well known in the art, the Examiner submits that Poillon et al. explicitly disclose a golf simulator and analyzer which analyzes a golf swing and places the would-be real swing into a virtual environment or golf game. Granted, the analyzing methods used by Poillon et al. are different than both of Manwaring & Numazaki et al., however, Poillon et al. explicitly teach a second means for performing information processing on the basis of information calculated by a first means, wherein the first means merely analyzes a swing and calculates various characteristics or properties of the golf club and golf ball for a particular swing. Therefore, it would have been obvious to modify the combination of Manwaring and Numazaki et al. as discussed above with the addition of further processing calculated data to be used in a golf game or virtual environment as is explicitly taught by Poillon et al. at least for the purpose of providing a simulation of a real-life golf swing in a golf game or golf training environment to improve a player's golf game and provide enjoyment while doing so.

For at least the reasons provided above, it would have been *prima facie* obvious to modify the golf swing analyzing invention taught by Manwaring to specifically analyze a swing using an improved swing as taught by Numazaki et al. for at least the reason that external light may hinder accurate analyzing of a golf swing, and further modify the combination of Manwaring & Numazaki et al. to perform additional information processing using information processed during a first calculating means (i.e. golf club and golf ball swing data) for the purpose of providing an enjoyable simulation of a real-life golf swing, such as in an area where a real golf swing would not be possible (i.e. using tee and screen as seen in figure 1 of Poillon et al.). Those skilled in the art would be motivated to make such improvements taught by both Numazaki et al. & Poillon et al. to Manwaring to improve both the imaging/calculating means to provide an enjoyable output to all the calculations performed.

**Claims 2 & 3:** Manwaring discloses a laser to activate the detector as the golf club is swing toward the teed golf ball (paragraph 0014), thus, the first means includes a determination whether or not the information is coincident with a predetermined condition, in which the condition is the triggering of the detector based on the breaking of the laser beam. Clearly, upon this detection, it would mean that the proceeding information measured or calculated by the "first means" is valid information, further, as discussed in the combination of Manwaring, Numazaki et al., & Poillon et al., valid information is to be transmitted or processed by the second means to perform or simulate the information in the golf game discussed.

**Claims 4 & 5:** The combination of Manwaring, Numazaki et al., & Poillon et al. disclose calculating a distance between the object or golf ball and the imaging means from the information indicative of a size of the golf ball, such as when a trajectory is calculated via the various measurements/calculations as described in any of the three references, where the trajectory includes a calculation of a distance between the golf ball and the imaging means as it simulates the trajectory.

The trajectory appears to be based on the size of the object measured throughout the imaging of the object in flight (i.e. Poillon et al. disclose similar calculations of a ball in flight and obtaining a trajectory, such calculations would have been an obvious matter of design choice to be implemented within Manwaring, as being well known possible calculations in the golf art). And, as part of the trajectory calculations, based on the shape and path of the golf ball, angles are calculated to provide a realistic trajectory.

**Claim 6:** Manwaring explicitly discloses calculation of an angle via predetermined points by calculating an angle between a line segment between the predetermined points and a predetermined coordinate axis (figures 12 & 13).

**Claims 7-9:** Manwaring appears to explicitly disclose that the time interval of light emission of the stroboscope or flashing units is freely settable (i.e. freely configuring length of light emission and non-light emission) and that the exposure period of the imaging means is freely configurable (i.e. it appears these intervals and lengths are dynamically determined based on an initial golf club head speed, thus, it appears any of these intervals and lengths would be freely configurable, see at least figures 5-11 and paragraphs 0066-0072).

**Claims 10 & 17:** Manwaring discloses the object or golf ball includes a reflective body (figures 4-13, where the reflection images clearly appear to show the body of the golf ball as reflective as being fully within the reflection image). It would have been a mere design consideration to use retroreflective material versus reflective material, as both achieve the same purpose. The Applicant has not stated that the retroreflective material produces any unexpected result and it appears reflective material would achieve equally the same result, thus, a retroreflective material is deemed a mere design consideration. Further, retroreflective material is notoriously well known in the art for use with golf systems such as the ones disclosed by any of the three references applied. Therefore, it

would have been *prima facie* obvious to those of ordinary skill in the art at the time the invention was made to utilize retroreflective material to obtain the invention as specified in claim 17.

**Claims 11-13:** The combination of Manwaring, Numazaki et al., & Poillon et al. disclose light sources for outputting light having a specific wavelength range and that the imaging means responds to only that specific wavelength. Further, disclosed is a filter for passing the particular wavelength and blocking light of any other wavelength. See at least column 12, lines 6-12 of Numazaki et al., which feature can be implemented in the Manwaring invention as an additional improvement to the imaging of reflected light (i.e. an additional layer of obtaining more precise swing data by imaging correctly reflected light that was emitted via the light sources versus other external light).

**Claim 14:** Clearly, any one of the inventions disclosed by Manwaring, Numazaki et al., & Poillon et al. or more specifically the combination of Manwaring, Numazaki et al., & Poillon et al. disclose the first means and second means as being a computer processor that obtains the swing data signals, analyzes the data, and outputs the data in at least the arrangement discussed above with respect to a golf game or virtual environment.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Examiner has cited numerous references in the attached "Notice of Cited References" that are applicable to the subject matter of the instant application. Accordingly, the Applicant is encouraged to review these references in their entirety as also potentially teaching all or part of the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Milap Shah whose telephone number is (571)272-1723. The examiner can normally be reached on M-F: 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pezzuto can be reached on (571) 272-6996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Robert E Pezzuto/  
Supervisory Patent Examiner, Art Unit 3714

/MBS/